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(54) **Dental irrigating needle.**

(57) A dental irrigating needle comprising a hub adapted to be engaged to a syringe and a cannula which is made of freely bendable metal and having a closed tip and at least one nozzle orifice for spout of a cleansing solution at the lateral wall of a forward portion of the cannula.

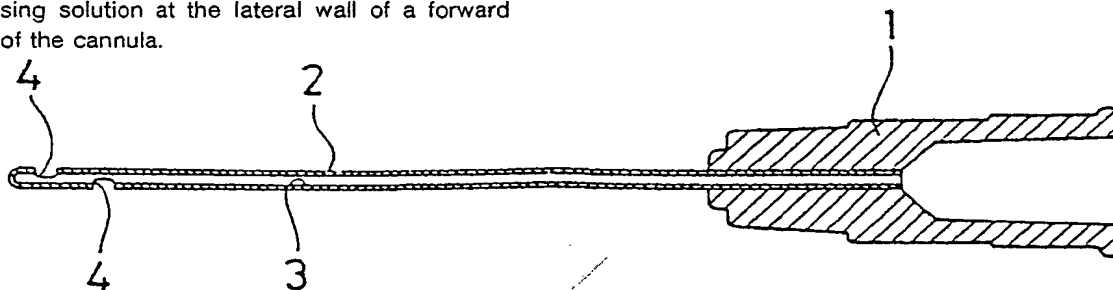


Fig. 1

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DENTAL IRRIGATING NEEDLE

This invention relates to an irrigating needle for removing reaming chips of dentine and residual organic matter in the process of root canal reformation in dental treatment, and has its application in the field of health care.

The dental irrigating needle (hereinafter referred to as an irrigating needle) is engaged to a syringe containing a cleansing solution in such applications as the irrigating of the canalis radialis dentis which is performed for removing reaming chips of dentine and residual organic matter in the process of root canal reformation. In use, the tip of the needle is applied to the irrigation site and the cleansing solution is spouted from the tip.

The conventional irrigating needle comprising a straight cannula having a nozzle orifice at its tip has proved inconvenient because the handling angle of the syringe must be delicately controlled according to the position of the tooth to be treated, the depth of the site to be irrigated, and so on.

To overcome this inconvenience, an irrigating needle comprising a cannula bent at a given angle in a position about 1 cm away from its tip has been developed and used.

However, there is also the problem that when the cleansing solution is spouted directly into the reamed tooth bottom, the reaming chips tend to enter into the tiny gaps in the depth of the root canal and cannot be removed.

To overcome the above disadvantage, an irrigating needle provided with an orifice for spout of the cleansing solution at the lateral wall of a forward portion of the cannula has been developed and put to use.

Of the above-mentioned prior art, the former is not as satisfactory as desired because, although the bent cannula assures a greater ease of use as compared with the straight construction, the fixed bending angle is not sufficient for handling. Furthermore, since this irrigating needle is provided with a nozzle orifice at the tip of the cannula, chips of dentine and other matter cannot be fully removed as mentioned above.

In the latter of the above-mentioned prior art, the cannula of the needle is straight and not bendable so that the above-mentioned inconvenience in use remains yet to be resolved.

Summary of the Invention

Having been accomplished to solve the above problems, this invention provides a dental irrigating needle comprising a hub adapted to be engaged to

a syringe and a cannula which is made of freely bendable metal and having a closed tip and at least one nozzle orifice for spout of the cleansing solution at the lateral wall of a forward portion of the cannula.

Brief description of the Drawing

Fig. 1 is a longitudinal section view showing the irrigating needle of this invention.

Fig. 2 is a side elevation view showing the needle in use.

Detailed Description of the Preferred Embodiment

This invention is described below with reference to an embodiment thereof as depicted in the accompanying drawing.

Fig. 1 is a longitudinal section view showing a irrigating needle of the invention which comprises a hub (1) and a cannula (2). The hub (1) may be the same as that of the conventional needle in size, shape, material and so forth.

The cannula (2) is made of freely bendable metal and has an internal passageway (3) for the cleansing solution with its forward end closed and a couple of nozzle orifices (4,4) for spouting the cleansing solution at the lateral wall adjacent to the closed tip in longitudinally different positions, one on one side and the other on the diametrically opposite side.

The freely bendable cannula (2) of the irrigating needle of the invention can be easily provided, for example by annealing a stainless steel tube by the method described in Japanese Utility Model Publication No. 172408/1987. The tip closure of the cannula (2) can be formed by gradual inward bending of the lateral wall of the tip portion of the pre-annealing needle. On the other hand, the nozzle orifice (4) can be formed by drilling the lateral wall adjacent to the closed tip of the pre-annealing cannula (2).

Like the conventional irrigating needle, the irrigating needle of this invention is used as engaged to the tip of a syringe containing a cleansing solution such as 10% sodium hypochlorite, 3% hydrogen peroxide and other solutions.

The irrigating needle according to this invention is not limited to the above embodiment but can be provided in an optional design in respect to the length and size of the cannula, the configuration

and size of the nozzle orifices, and other details.

There is no particular limitation on the number of available nozzle orifices but the arrangement of 2 or 3 orifices for spout of the cleansing solution in diverse directions contributes to enhanced irrigating effect and is preferable.

Furthermore, the provision of the hub with a marking indicating the direction of the nozzle orifices, such as a dot mark, is further convenient for use.

Since the irrigating needle of this invention is made of freely bendable metal, it can be bent in any desired position and direction at an optional angle according to the site to be irrigated, as shown in solid and dotted lines in Fig. 2, and, moreover, can be easily inserted into a curved root canal. Thus, this irrigating needle is very convenient for use.

Furthermore, when each of plural nozzle orifices for the cleansing solution are provided on different lateral sides, the cleansing solution is ejected in different directions at the same time, so that an irrigating efficiency is obtained.

Claims

A dental irrigating needle comprising a hub adapted to be engaged to a syringe and a cannula which is made of freely bendable metal and having a closed tip and at least one nozzle orifice for spout of a cleansing solution at the lateral wall of a forward portion of the cannula.

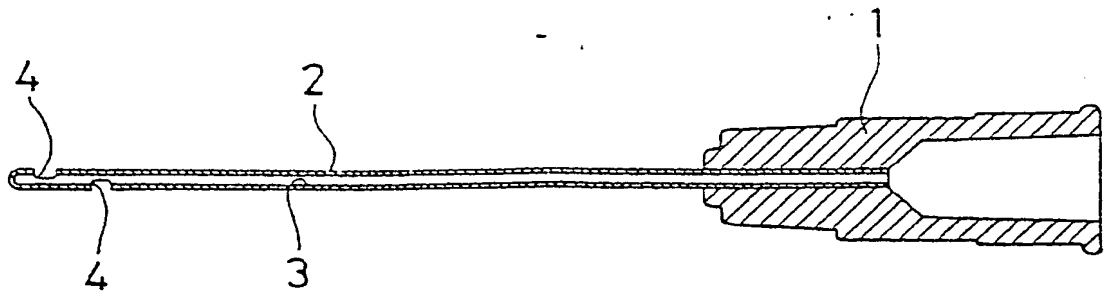


Fig. 1

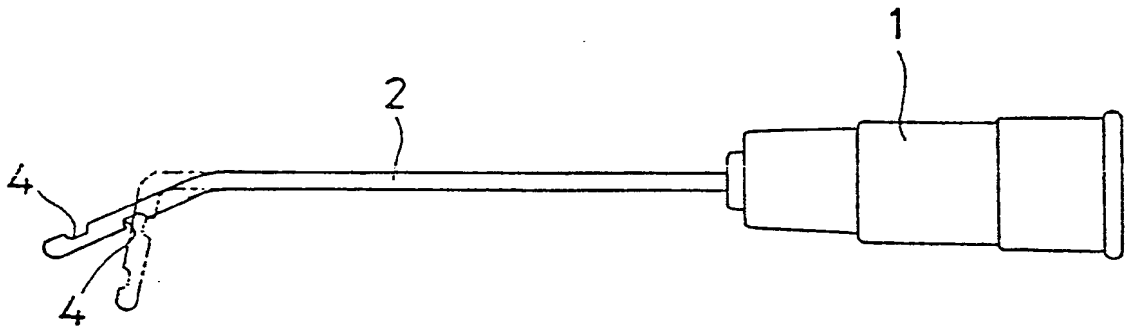


Fig. 2

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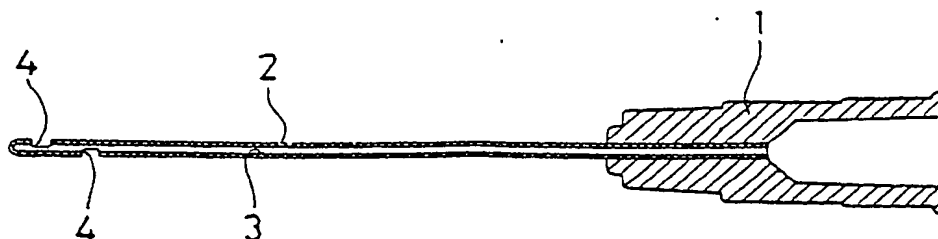
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24.10.90 Bulletin 90/43(71) Applicant: **NISSHO CORPORATION**
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(2) which is made of freely bendable metal andhaving a closed tip and at least one nozzle orifice (4)
for spout of a cleansing solution at the lateral wall of
a forward portion of the cannula.

Fig. 1



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EUROPEAN SEARCH REPORT

Application Number

EP 88 10 7172

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
Y	US-A-3 816 921 (MALMIN) * column 6, lines 7-13; figures 7,A,B * ---	1	A 61 C 5/02 A 61 C 17/02
Y	US-A-4 276 880 (MALMIN) * figures * ---	1	
A	US-A-3 035 351 (HIRSCH) * figures 1,3,4 * ---	1	
A	GB-A-2 143 497 (ACO LAKEMEDEL) * claims 3,8; figure 4 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			A 61 C
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 03-08-1990	Examiner KANAL P K
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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